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CRAFT CANNING SYSTEM

Low Fill Troubleshooting

This guide will help you identify problematic Fill Head components or Pneumatics related to persistent low fills on the CCL-45.

These checks and swaps are to be completed in order, to determine which parts have become worn/faulty and will need to be replaced.

When troubleshooting a low fill on a particular Fill Head, we like to swap components from the problematic Fill Head to one filling consistently, in order to help us find which component brings the problem along with it. This process may take place over multiple runs as a CIP after completing the change may be necessary. If time is a limiting factor, cleaning parts thoroughly with isopropyl is an adequate option.

Swap the Float Ball & Claw Assembly

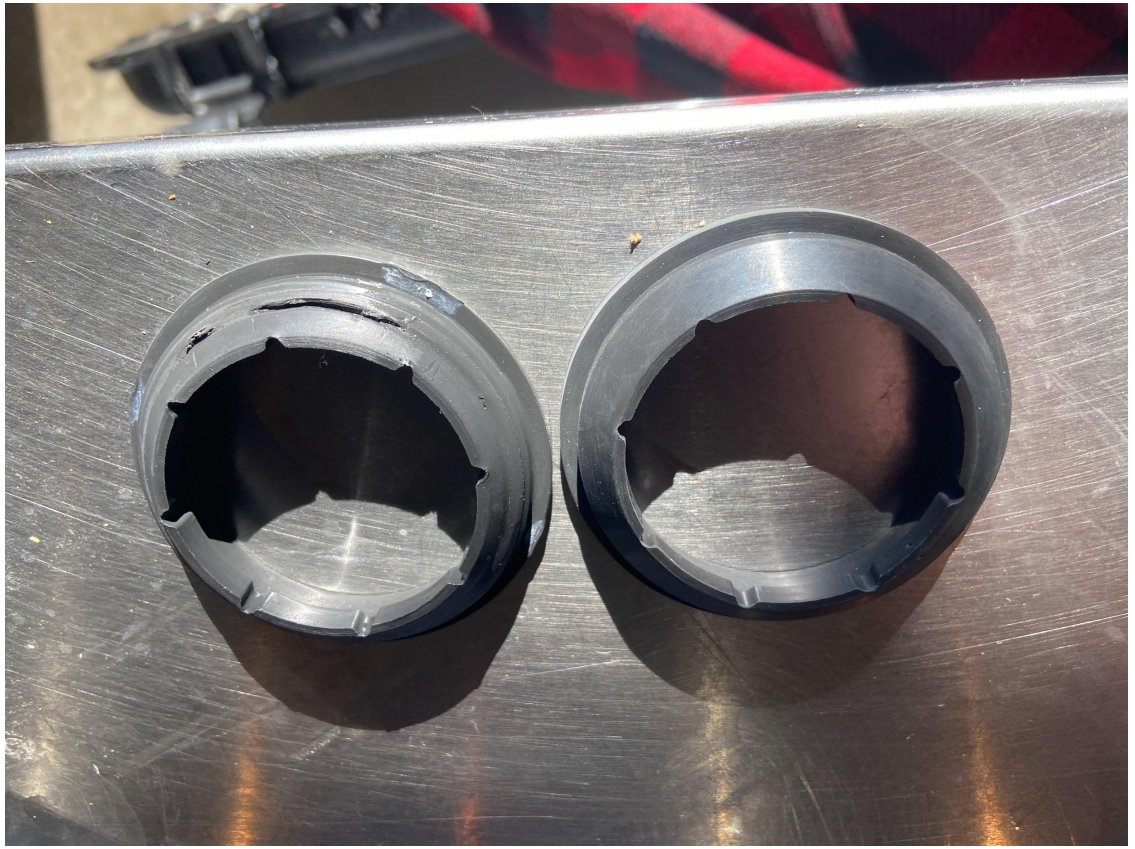
We like to swap these before replacing them outright because they can fail without visual or mechanical verification. However, a simple swap from the problematic Fill Head to another FIll Head running properly can cause the issue to jump clearly and immediately.

The problem can also be tied to the female thread on the CO2 Vent Stem that the Float Claw connects to. These can be easily cross-threaded, so carefully loosen them by hand once they've been broken free using a 5/8" Deep Well Socket. Re-tighten by hand and finish tightening with the Socket Wrench.

Swap the Can Seal Gasket

If there is a tiny imperceptible leak in the problematic Fill Head, it will essentially act like there is a slightly higher Throttle setting - the gas is leaking out while it is also flowing out under control using the Throttle so there is slightly more total gas flow. As you know, higher Throttle will lead to more foam and a slightly lower fill level.

Loosen the 4 7/16” bolts holding the Fill Head to the Carriage, and remove the Centering Bells out from under the Fill Heads. Swap the Gaskets between the problematic FIll Head and one producing good fills to see if the problem follows.

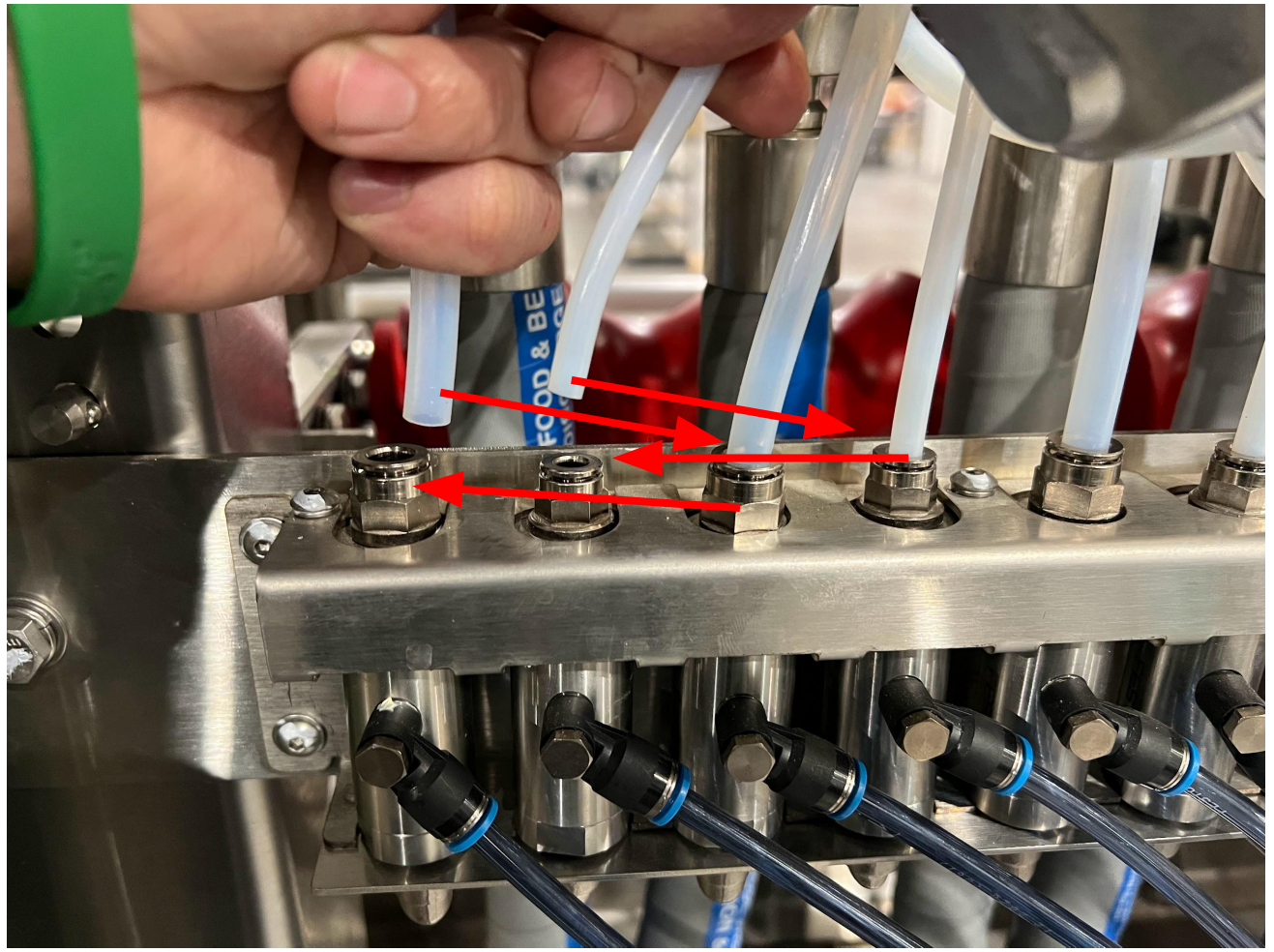


Swap the Throttle and Snift Lines

These lines are utilized during the Throttle and Snift processes.

For this step, simply disconnect the 8mm and 6mm tubes that control the Throttle and Snift at the top of the Pinch Valves of the problematic Fill Head.

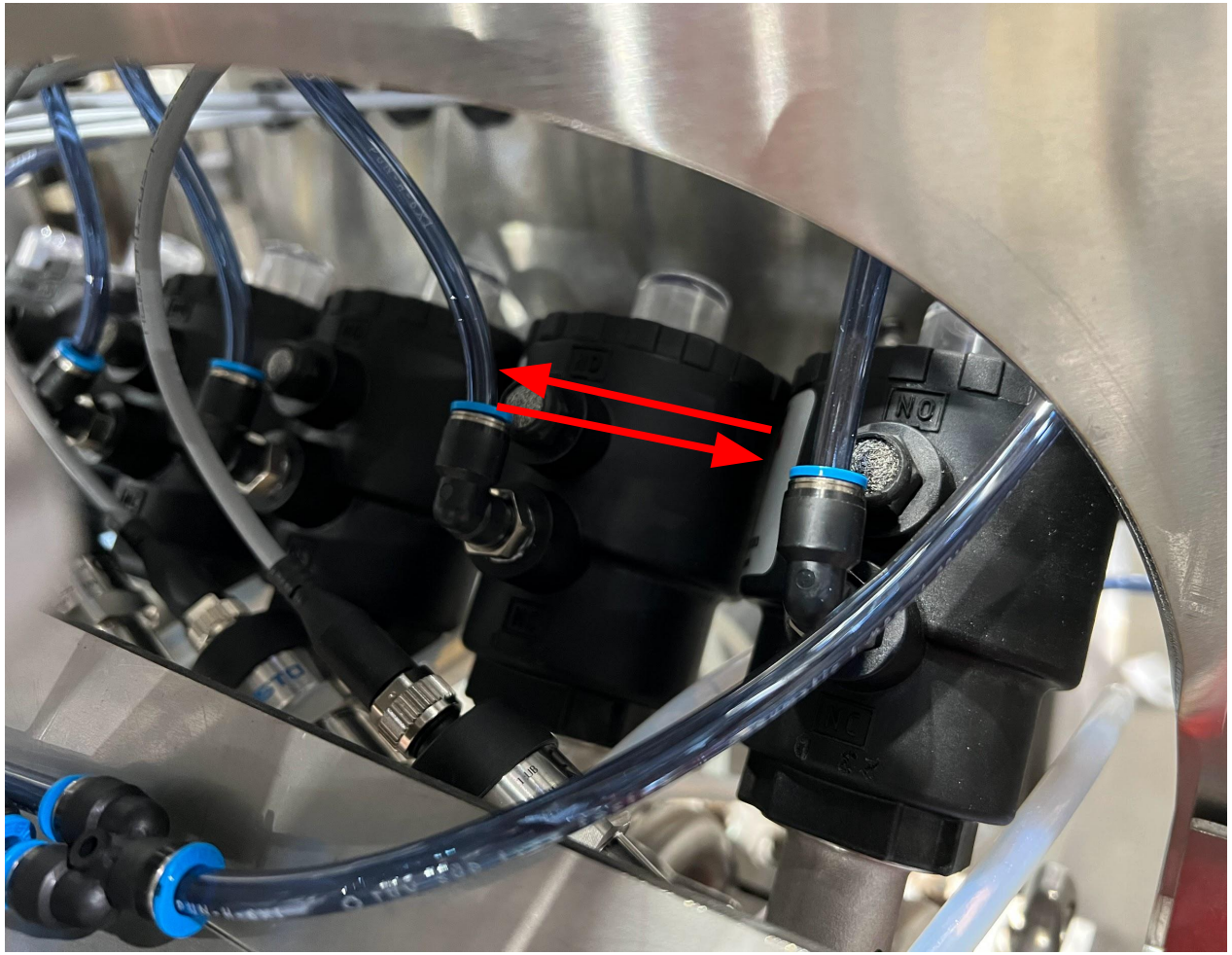
Switch them with the matched set on a Fill Head filling consistently and see if the problem follows.



Swap the Angle Seat Valve Air Line

The Pilot air lines open and close the Angle Seat Valves, controlling the stop and start of product flow into the Fill Heads.

Swap the 6mm air line that connects to the Angle Seat Valve from the problematic Fill Head to one filling consistently to determine if an Angle Seat Valve needs to be replaced.

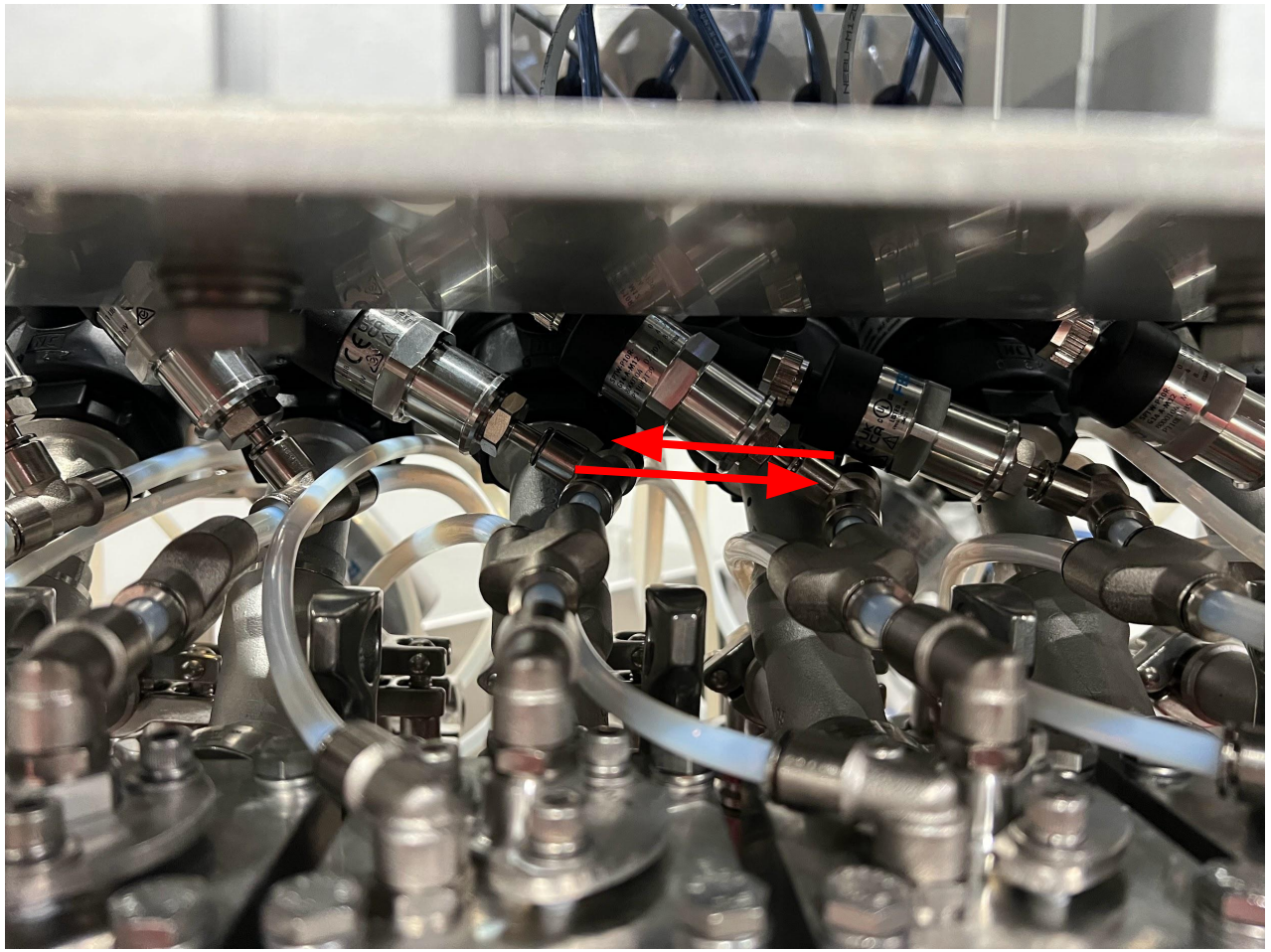


Swap the Pressure Transducer

The Pressure Transducer measures CO2 pressure inside the Fill Head loop.

The pressure inside the cans is equalized during the fill cycle, so while this should not have much effect and is more difficult to visually confirm, it is part of the fill loop and is worth explicitly ruling out.

Remove the Transducer from the problematic Fill Head T connection and swap with a Transducer from a properly working Fill Head. Note any differences in breakout as well as the individual pressure readouts on the HMI.



Swap the Valve Card

On a 6 Head Filler, these three (K) Valve Cards control your Fill Heads.

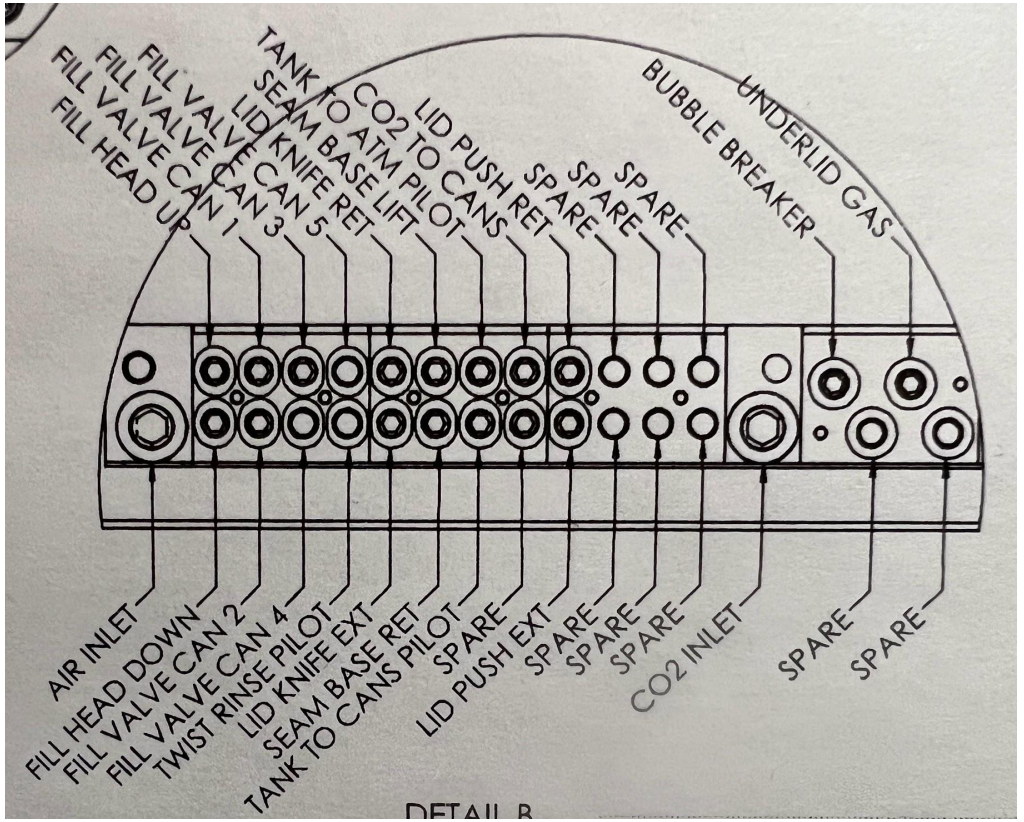
Each card controls two Fill Heads (L to R - 1 & 2, 3 & 4, 5 & 6).

Swap the Valve Card

Follow the pilot air line back to the Festo Manifold and locate the (K) Valve Card that controls your problematic Fill Head.

Use the diagram provided to locate which Valve Card controls the Fill Head in question.
Verify that the Card you swap also controls two the Fill Heads.

While in the Festo Manifold, look for any signs of oil/water/debris and clean out using aeresolized sterile air (i.e. computer duster). Often times, gunk in the back of the valves is the culprit of sporadic filling by the valves being stuck open.

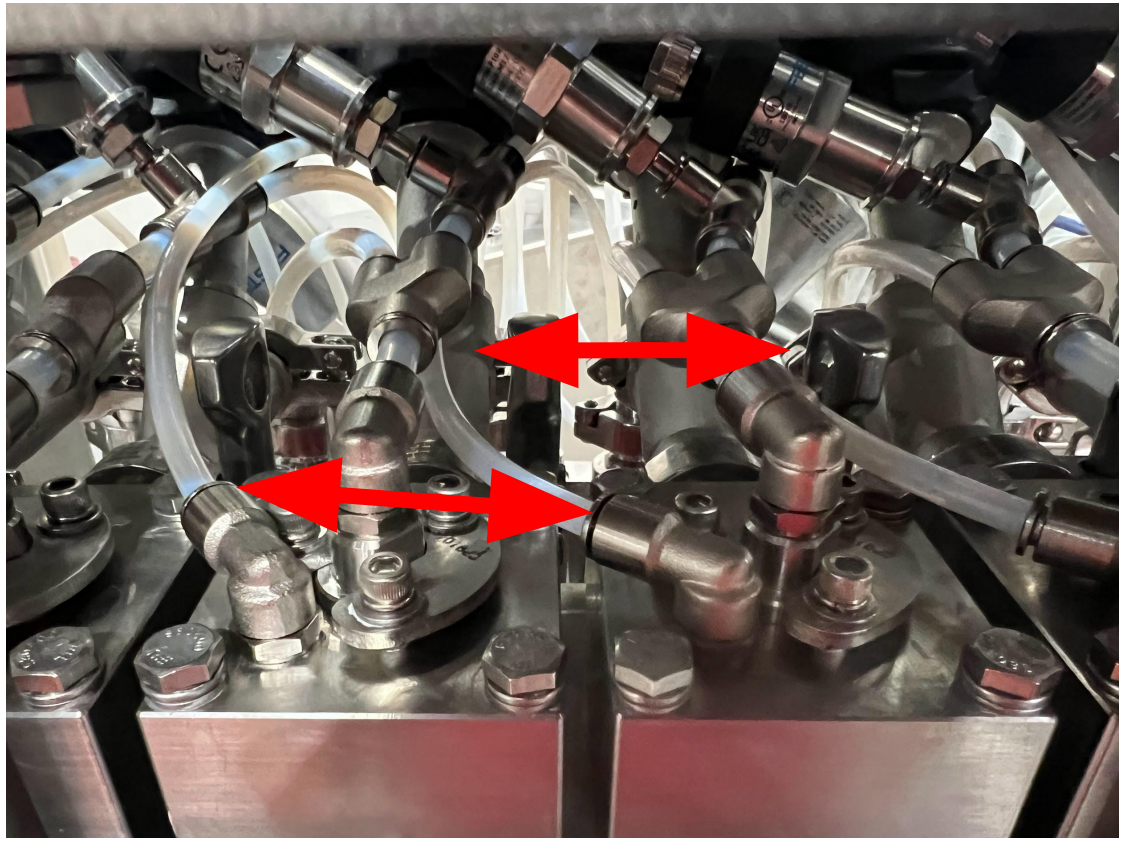


Swap the Fill Head Tubing

Swap the tubing that connects the top of the Fill Head back to the Snift Valve Manifold. Checking for any rubbing or kinks in these lines can reveal leaks or imperfections that may inhibit throttle or snift controls that contribute to persistent low fills.

Include both 8mm tubes that connect into the Fill Head through the Y-connection - one line goes to the Pressure Transducer and Pinch Valve, the other goes to the shared Manifold for “Tank to Cans” and “CO2 to Cans” - and the 6mm tube that goes from the Fill Head to the Snift Pinch Valve.

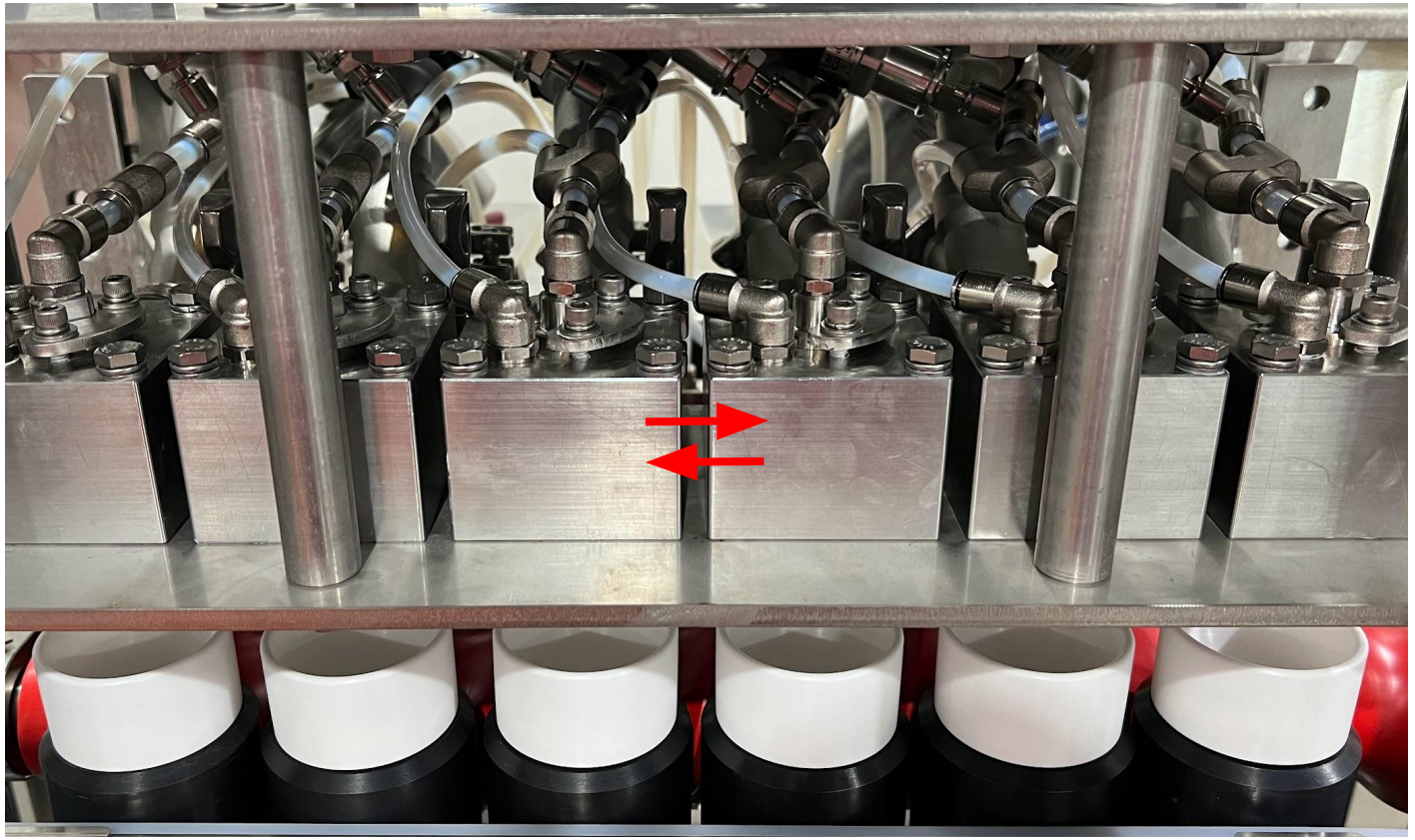
It may be worth taking note of the length of the tubing compared to the other Fill heads



Swap the Fill Head

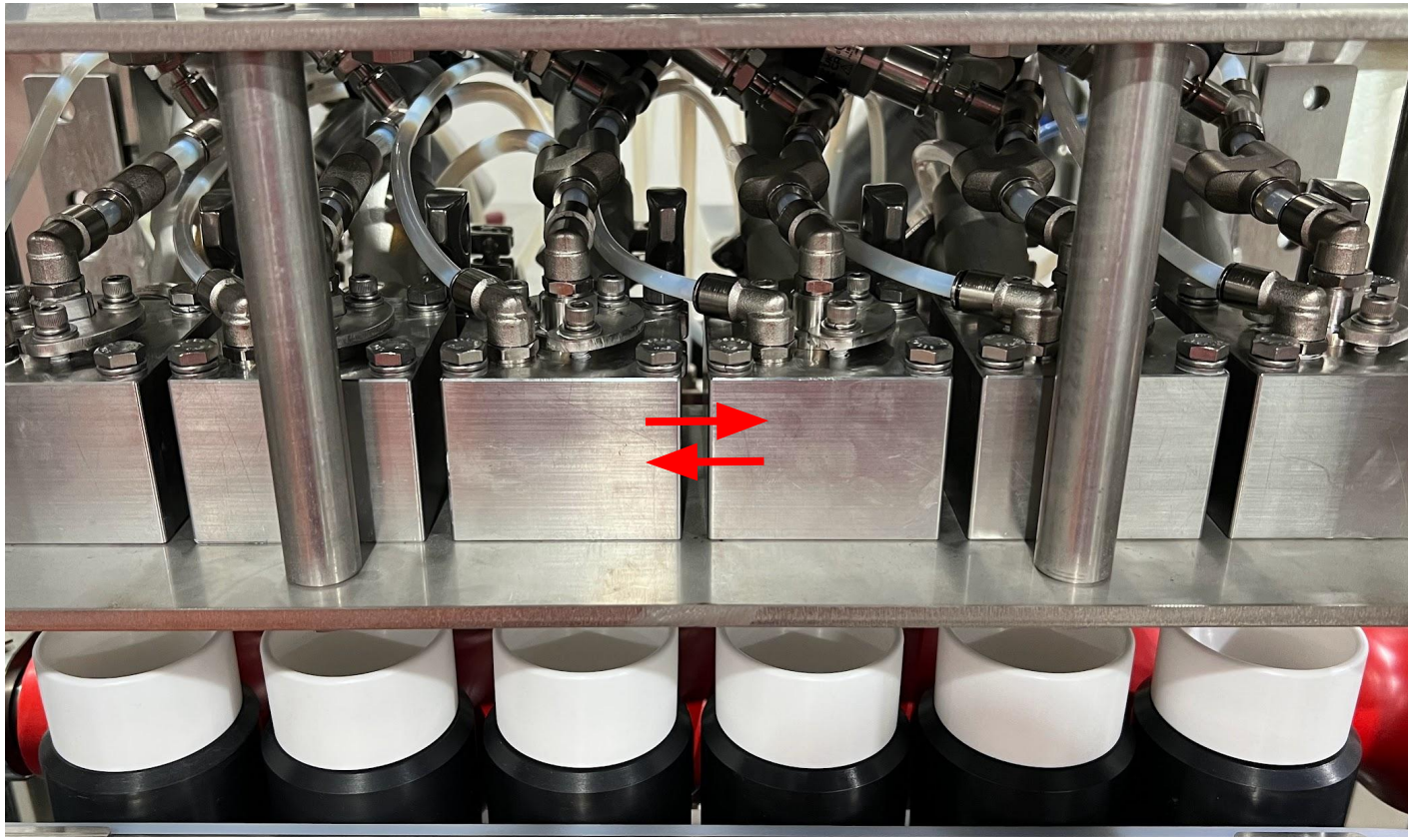
This step includes swapping out a few suspect internals of the Fill Head at the same time.

Disconnect the 6mm and 8mm hoses from the push-to connections on top of the Fill Head Blocks. Remove the four 7/16” bolts holding each Block to the frame. Once the bolts have been broken free, remove the Centering Bells on the underside of the Fill Head Carriage, and the Blocks should pull up and out.



Swap the Fill Head

If this change is the one that fixes your Low Fill issue, disassemble the FIll Head and check the condition of the other internals (aside from the Float Ball & Claw assembly that was examined previously), such as the CO2 Vent Stem, O-Ring at the top of the Stem, and the Centering Cone.

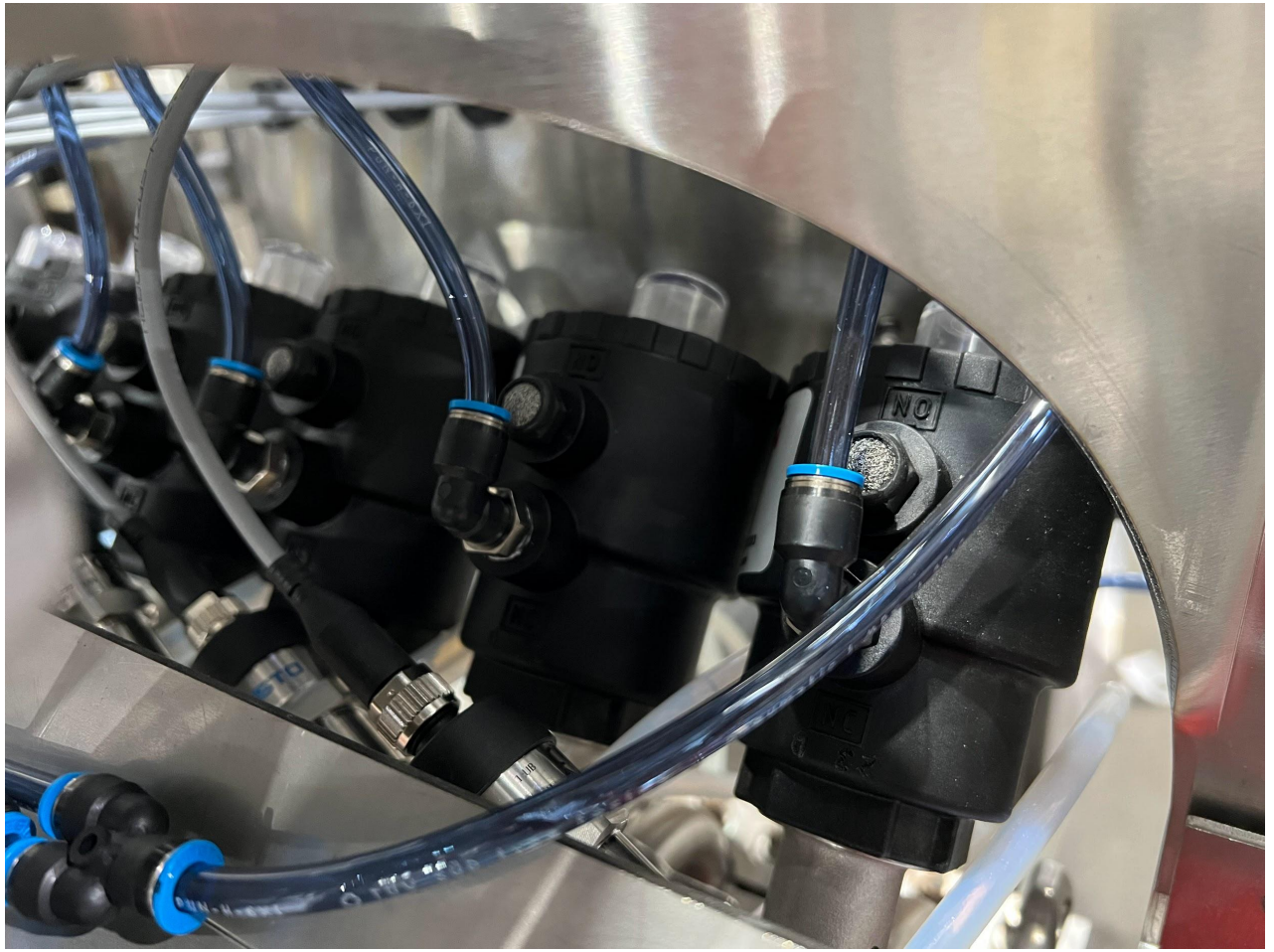


Swap the Angle Seat Valve

Rather than swapping the pilot air lines completed earlier, this step involves swapping the Angle Seat Valves themselves.

Angle Seat Valves can become faulty without showing signs of internal component failure other than inconsistent filling, so performing this swap may immediately indicate that the Angle Seat Valve is the problem child in the grand scheme of filling components.

For this swap, we typically swap the tri-clamps and gaskets along with the Angle Seat Valve. Examine them for imperfections as well.



Swap the Fill Hose, Tri-Clamp and Gasket

While completing this swap, it's worth noting to look carefully at the path of the hose.

Each one takes a slightly different path between the Tank and Fill Heads. A few of them fold up tight against the tank, so it is possible that a kink or some other difference in the product's path may be a contributing factor.

Although the Fill Hoses are factory cut and crimped, it may be worth evaluating the length of the hose compared to the others to determine an outlier.

Check product hose ferals for bulging

This issue is not super common, but it is worth checking to see if there is any internal bulging of the hose.

The pictures to the left show a most extreme case, but you don't have to go to math college to figure out that if the product flow is choked off by a bulged hose, it is going to greatly affect our fill levels.

The only true fix here is a swap to a new product hose: Part #XP002197

Closing Statements and Notes

- After completing each individual swap, carefully watch several fill cycles and note any change between Fill Heads.
- If the Low Fill doesn't move after a part swap, undo the change and move on to the next one. If the Low Fill moves to the other Fill Head involved in the swap, take note of that component and consider outright replacement or additional troubleshooting to determine exactly what is wrong with the part in question.
- If the Low Fill is still present and persistent after all checks listed above, a final inspection would be the level and parallelism of the Transfer Plate, as well as the control and reliability of the can position underneath the Fill Head seal from cycle to cycle.

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If you have any further questions, please email:
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